

## 101.8 - Low Alloy Steels (disk and rod forms)

Steel and iron SRMs described here are furnished in various forms (disk, rod and chips) for optical emission and X-ray fluorescence spectrometric methods and for other methods of chemical analysis.

See also: [Table 101.3](#) and [Table 101.5](#).

Nominal Sizes for Solid Steel SRMs:

600 Series: 3.2 mm diameter and 51 mm long.

1100 and 1200 Series: 31 mm diameter and 19 mm thick.

1700 Series: 34mm diameter and 19 mm thick.

A "C" preceding the SRM number indicates a chill cast sample; 31 mm diameter and 19 mm thick.

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SRM	663	1134	1135	1218	1224	1225	1226	1227	1228	1264a	1265a	1269	1270	1271	C1285
Description															
Unit of Issue	(5 rods)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)
<b>Elemental Composition (mass fraction in % unless noted by an asterik * for mg/kg)</b>															
Aluminum (Al)	0.24	0.329	0.0028	0.005	0.0598		0.054	(0.028)	0.061	(0.008)	(0.0007)	0.016	(0.005)	0.020	(0.12)
Antimony (Sb)	0.002									0.034	(<0.0005)				(0.04)
Arsenic (As)	0.010									0.052	(0.0002)	(0.006)	(0.02)		(0.022)
Bismuth (Bi)	(0.0008)									(0.0009)					
Boron (B)	0.00118									(0.011)	0.00013	(<0.0001)	(0.0033)		
Cadmium (Cd)															
Calcium (Ca)	(<0.0001)									0.00004					
Carbon (C)	0.57	0.0261	0.027	0.0029	0.7518	0.274	0.085	0.97	0.072	0.871	0.0067	0.298	0.077	0.064	0.058
Cerium (Ce)	(0.0016)									0.00022					(0.0021)
Chromium (Cr)	1.31	0.0198	0.022	0.006	0.0710	0.91	0.467	0.019	0.016	0.066	0.0072	0.201	2.34	0.552	0.80
Cobalt (Co)	0.048				(0.002)			0.029	(0.0008)		0.15	0.0070	(0.014)	0.038	0.036
Copper (Cu)	0.098	0.0707	0.056	0.003	0.0711		0.125	0.006	0.012	0.250	0.0058	0.095	0.114	1.48	0.37
Germanium (Ge)	(0.010)									(0.003)	(0.0014)				
Gold (Au)	0.0005									(0.0001)					
Hafnium (Hf)	(0.0015)									(0.0013)					
Hydrogen (H)	(<0.0005)									(<0.0005)	(<0.0005)				
Iron (Fe)	(94.4)									(96.7)	(99.9)				
Lanthanum (La)	0.0006									0.00007					
Lead (Pb)	0.0022							(0.0001)		0.024	0.000015	0.005	(0.0016)		
Magnesium (Mg)	(0.0005)									0.00015					
Manganese (Mn)	1.50	0.2751	0.094	0.014	0.4098	0.48	0.274	0.402	0.365	0.258	0.0057	1.35	0.626	0.73	0.332
Molybdenum (Mo)	0.030	0.0087	0.014	(0.003)	0.0132	0.166	0.446	0.003	0.009	0.49	0.0050	0.036	0.956	0.543	0.164
Neodymium (Nd)	(0.0007)									0.00007					
Nickel (Ni)	0.32	0.0375	0.050	(0.002)	0.0537	0.018	5.42	0.007	0.018	0.142	0.041	0.108	0.174	3.34	1.17
Niobium (Nb)	0.049						(0.005)			0.157					0.025
Nitrogen (N)	(0.0041)									(0.0032)	(0.0011)				
Oxygen (O)	(0.0007)									(0.0010)	(0.0063)				
Phosphorus (P)	0.029	0.0276	0.006	(0.002)	0.00884	0.007	0.0022	0.014	0.004	0.010	0.0011	0.012	0.0065	0.005	0.072
Praseodymium (Pr)	(0.00018)									(0.00003)					
Selenium (Se)	(0.0001)									(0.00021)					
Silicon (Si)	0.74	2.889	3.19	(3.2)	0.1725	0.221	0.231	0.215	0.007	0.066	0.0080	0.189	0.247	0.334	0.36
Silver (Ag)	(0.0038)									(0.00002)	(0.00002)	(0.0002)	(0.0001)		
Sulfur (S)	0.0055	0.0095	0.026	0.0011	0.0395	0.014	0.0044	0.026	0.018	0.025	0.0055	0.0061	0.0065	0.0013	0.020
Tantalum (Ta)	(0.053)									0.11					
Tellurium (Te)	(0.0022)									0.00018					
Tin (Sn)	(0.095)	0.0034	0.004				(0.003)			(0.008)	(0.002)	(0.039)	(0.02)		0.35
Titanium (Ti)	0.050			(0.004)			0.0021			0.24	(0.0001)	(0.009)	(0.003)		
Tungsten (W)	0.046						(0.005)			0.102	(0.00004)	(0.001)	(0.003)		(0.03)
Vanadium (V)	0.31		<0.1	(<0.001)	0.0016	0.004	0.0018	0.002	<0.001	0.106	0.0006	0.004	0.013	0.003	0.150
Zinc (Zn)	(0.0004)									(0.001)	(<0.0001)				
Zirconium (Zr)	0.050			(0.002)			(0.010)	(0.0006)		0.069					(0.02)

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SRM	1286	1761a	1762a	1763b	1764a	1765	1766	1767	1768
Description	Low Alloy Steel (HY 80)	Low Alloy Steel	Low Alloy Steel	Low Alloy Steel (disk form)	Low Alloy Steel	Low Alloy Steel	Low Alloy Steel	Low Alloy Steel	High-Purity Iron (disk form)
Unit of Issue	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)	(disk)
<b>Elemental Composition (mass fraction in % unless noted by an asterik * for mg/kg)</b>									
<b>Aluminum (Al)</b>	0.109	0.055	0.0706	0.0422	0.0098	(0.006)	0.012	0.004	0.0024
<b>Antimony (Sb)</b>		<i>0.0052</i>		0.0110		0.0010	0.0005		(<1.0)*
<b>Arsenic (As)</b>	0.019	<i>0.011</i>	0.0173	0.0539	0.0100	0.0010	0.0035	0.0005	(<1.0)*
<b>Bismuth (Bi)</b>						(<0.0001)	(<0.0001)*	(<0.0001)	(<4.0)*
<b>Boron (B)</b>	(0.006)	0.0023	0.0042	0.00535	<i>0.0010</i>	0.0009	<i>4.4*</i>	0.0010	(<2.0)*
<b>Cadmium (Cd)</b>									(<1.0)*
<b>Calcium (Ca)</b>								(0.0003)	(<1.0)*
<b>Carbon (C)</b>	0.196	<i>1.05</i>	0.341	0.201	0.592	0.006	0.015	0.052	0.0010
<b>Cerium (Ce)</b>							(0.002)*		
<b>Chromium (Cr)</b>	1.53	0.222	0.923	0.5039	1.468	0.051	0.024	0.0015	(<2.0)*
<b>Cobalt (Co)</b>	0.116	<i>0.027</i>	0.0616	0.09248	<i>0.012</i>	0.0012	0.0020	0.0050	0.0025
<b>Copper (Cu)</b>	0.043	0.298	0.1186	0.04170	0.5178	0.0013	0.015	0.0014	0.0006
<b>Germanium (Ge)</b>									
<b>Gold (Au)</b>									
<b>Hafnium (Hf)</b>									
<b>Hydrogen (H)</b>									
<b>Iron (Fe)</b>		(95.0)	(94.2)	(95.0)	(95.1)				
<b>Lanthanum (La)</b>									
<b>Lead (Pb)</b>	(0.0002)					0.0003	0.003	(0.0001)	(<1.0)*
<b>Magnesium (Mg)</b>						(<0.0001)	(<0.0005)*	(<0.0001)	(<6.0)*
<b>Manganese (Mn)</b>	0.152	0.679	1.912	1.605	1.193	0.144	0.067	0.022	0.0014
<b>Molybdenum (Mo)</b>	0.334	0.103	0.353	0.491	0.2007	0.005	0.0035	0.020	(<3.0)*
<b>Neodymium (Nd)</b>									
<b>Nickel (Ni)</b>	2.81	1.981	1.156	0.5075	0.2006	0.154	0.021	0.002	0.0014
<b>Niobium (Nb)</b>	(0.012)	0.021	0.0692	0.0998	0.0416	0.0004	0.005	0.010	(<5.0)*
<b>Nitrogen (N)</b>		<i>0.0042</i>	(0.002)		<i>0.0023</i>	0.0010	0.0033	0.0008	0.002
<b>Oxygen (O)</b>									0.036
<b>Phosphorus (P)</b>	0.008	0.042	0.0346	0.01233	0.0210	0.0052	0.002	0.0031	0.0013
<b>Praseodymium (Pr)</b>									
<b>Selenium (Se)</b>						(0.0035)	(0.0035)*		(<1.0)*
<b>Silicon (Si)</b>	0.130	0.182	0.351	0.6275	0.0595	(0.004)	0.010	0.026	(<10.0)
<b>Silver (Ag)</b>						0.0002	0.0005	0.0008	
<b>Sulfur (S)</b>	0.017	0.037	0.0295	0.0229	0.0118	0.0038	0.0024	0.0090	0.0003
<b>Tantalum (Ta)</b>		<i>0.050</i>	0.0203	0.0119	0.0297	(0.004)	(0.006)*	(0.002)	(<1.0)*
<b>Tellurium (Te)</b>						(0.003)	(0.003)*	(0.0003)	(<1.0)*
<b>Tin (Sn)</b>	0.012	<i>0.050</i>	0.0479	0.01098	<i>0.024</i>	0.002	0.0010	0.006	(<1.0)*
<b>Titanium (Ti)</b>	0.040	0.173	0.0952	0.313	0.0286	0.0055	0.0005	0.011	(<10.0)*
<b>Tungsten (W)</b>	(0.13)	(0.02)		0.00216	(0.0016)		(0.001)*		(<2.0)*
<b>Vanadium (V)</b>	0.0057	0.054	0.2010	0.3075	0.1063	0.0040	0.009	0.033	(<1.0)*
<b>Zinc (Zn)</b>									(<1.0)*
<b>Zirconium (Zr)</b>	(0.021)	0.012	0.0285	0.0445	0.0012	(0.0002)	(0.0004)*	(0.004)	(<1.0)*

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